

AMENDMENTS TO THE CLAIMS

The listing of claims replaces all prior versions and listings of claims in the application. The listing of claims presents each claim with its respective status shown in parentheses. Only those claims being amended herein show their changes in highlighted form, *i.e.*, insertions appear as underlined text (e.g., insertions) while deletions appear as strikethrough text (e.g., ~~deletions~~). All previously amended claims appear as clean text.

Claim 1. **(Currently amended)** A measurement device for generating an arterial volume indicative signal, the measurement device comprising:

an exciter adapted to receive an oscillating signal and generate a pressure wave based at least in part on the oscillating signal on the artery at a measurement site on a patient, wherein the pressure wave comprises a frequency; and

a detector placed sufficiently near the measurement site to detect a volumetric signal indicative of arterial volume of the patient, wherein the volumetric signal comprises an amplitude, and wherein the measurement device is connected to a processor, which determines when the amplitude of the volumetric signal is greatest, thereby determining when transmural pressure is about zero.

Claim 2. **(Original)** The measurement device of Claim 1, further comprising an oscillator adapted to generate the oscillating signal.

Claim 3. **(Currently amended)** The measurement device of Claim 1, wherein the measurement device is in communication with a processor, ~~which generates the oscillating signal.~~

Claim 4. **(Original)** The measurement device of Claim 1, wherein the frequency is about 40 Hz.

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Claim 5. **(Currently amended)** The measurement device of Claim 1, wherein the measurement device is in communication with an external pressure application device and the detector comprises a pressure transducer ~~in communication with the external pressure application device.~~

Claim 6. **(Original)** The measurement device of Claim 1, wherein the detector comprises a plethysmograph.

Claims 7-11. **(Canceled)**

Claim 12. **(Original)** The measurement device of Claim 1, wherein the exciter comprises an audio transducer.

Claim 13. **(Original)** A method of determining the blood pressure of a patient from an arterial volume indicative signal, the method comprising:

inducing a high-frequency pressure wave onto an artery;

detecting a signal indicative of arterial volume, wherein the signal includes a high-frequency component from the pressure wave;

filtering low-frequency components from the signal, thereby providing a filtered signal, wherein the filtered signal comprises an amplitude; and

determining when the amplitude of the filtered signal is greatest, thereby determining when transmural pressure is about zero.

Claim 14. **(Original)** The method of Claim 13, wherein the filtering is performed digitally.

Claim 15. **(Original)** The method of Claim 13, wherein the signal is detected with a plethysmograph.

Claim 16. **(Original)** The method of Claim 13, further comprising changing the pressure induced onto the artery by an external pressure application device to determine systolic and diastolic blood pressure.

Claim 17. **(Original)** The method of Claim 13, further comprising changing the pressure induced onto the artery by an external pressure application device to ensure the pressure induced is between systolic and diastolic blood pressure.

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Claim 18. **(Currently amended)** A measurement device for determining the blood pressure of a patient by finding a time when transmural pressure is approximately equal to zero, the measurement device comprising:

a device, which perturbs at least one of pressure and volume of an artery of a patient; and

a pressure transducer placed sufficiently near a measurement site to detect a signal indicative of an oscillation response when the device perturbs the at least one of pressure and volume, wherein the measurement device is in communication with a processor, which determines when an amplitude of the signal is greatest, thereby determining the time when transmural pressure is approximately equal to zero.

Claims 19-20. **(Canceled).**

Claim 21. **(Currently amended)** A measurement device for determining the blood pressure of a patient, the measurement device comprising:

an exciter, which induces a pressure oscillation along an artery; and

a detector, which senses the pressure oscillation and outputs a signal indicative of the pressure oscillation, wherein at least one of the exciter and detector are adapted to be placed between portions of an external pressure application device and a measurement site, wherein the measurement device is in communication with a processor, which determines a time when an amplitude of the signal is greatest, and determines the blood pressure based at least in part upon the time.

Claim 22. **(Original)** The measurement device of claim 21, further comprising an oscillator.

Claims 23-25. **(Canceled).**

Claim 26. **(Currently amended)** A method of determining blood pressure of a patient, the method comprising:

- providing a range of pressures to an artery;
- providing an oscillating signal to the artery;
- measuring a signal indicative of the oscillating signal and at least one pressure within the range of pressures;
- filtering the signal indicative of the oscillating signal and at least one pressure within the range of pressures to produce a filtered signal, wherein the filtered signal comprises an amplitude;
- determining a point of about zero transmural pressure ~~pressure within the range of pressures~~ when the amplitude of the filtered signal is at maximum; and
- determining a pressure within the range in pressures based at least in part from said point of about zero transmural pressure.

Claim 27. **(New)** A method of determining blood pressure of a patient, the method comprising:

- detecting a signal indicative of an oscillation along an artery; and
- determining a point of zero transmural pressure from an amplitude maximum of said detected signal.

Claim 28. **(New)** A measurement device for generating an arterial volume indicative signal, the measurement device comprising:

- an exciter adapted to receive an oscillating signal and generate a pressure wave based at least in part on the oscillating signal on the artery at a measurement site on a patient, wherein the pressure wave comprises a frequency;
- a detector placed sufficiently near the measurement site to detect a volumetric signal indicative of arterial volume of the patient; and
- a high pass filter, which substantially removes pulsatile components from the volumetric signal, thereby producing a filtered signal, wherein the filtered signal comprises an amplitude, and wherein the measurement device is in communication with a processor, which determines when the amplitude of the filtered signal is greatest, thereby determining when transmural pressure is about zero.

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Claim 29. **(New)** A measurement device for generating an arterial volume indicative signal, the measurement device comprising:

an exciter adapted to receive an oscillating signal and generate a pressure wave based at least in part on the oscillating signal on the artery at a measurement site on a patient, wherein the pressure wave comprises a frequency; and

a detector placed sufficiently near the measurement site to detect a volumetric signal indicative of arterial volume of the patient; wherein the measurement device is in communication with a processor, which digitally filters the volumetric signal, thereby producing a filtered signal, wherein the filtered signal comprises an amplitude, and wherein the processor, determines when the amplitude of the filtered signal is greatest, thereby determining when transmural pressure is about zero.